

entirely black to near the front margin of eyes, its surface sparsely and microscopically wrinkled and punctured; the remainder of the head is yellow. The ocelli are slightly farther from each other than from the eyes. The genal margins join the clypeus on either side almost in one straight line. The clypeus extends abruptly, evenly rounded, about as long as wide.

The pronotum on anterior half is black, the posterior half and the sides extending to shoulders are yellow. Over each eye is a large triangular piceous blotch. The pronotum in front is nearly smooth, posteriorly dark punctate. Viewed from the side the upper margin of posterior half is nearly straight, the lower margin between shoulder and tip is trisinate, the median sinus stronger, and between this and the margin a submarginal pitted groove. The tip of pronotum reaches nearly to end of first inner apical cell.

The claval nervure is more than half the length of clavus. There are three discoidal cells, due to a forking of the outer anteapical nervure and a cross-vein between the two ulnars. The basal cell is small and triangular, and scarcely half the length of the anteapical cell beyond it. The two outer terminal nervures are slightly curved towards the costa. The tegmina are somewhat smoky, the nervures dark distally to nearly colourless at the base. The claval suture and commisural margin are blackened at the extreme base. The corium at base is only punctured along the nervures, while one-fourth of the clavus is coriaceous and punctate. The central apical cell of wings is long and narrow, the sides subparallel and the base truncate.

#### MOSQUITO NOTES FOR 1906.

It has been customary in the past to speak of mosquito larvæ or wrigglers as dependent on atmospheric air, and to assert that they would drown if shut off from the surface for more than a few minutes. When it was discovered that some wrigglers with well-developed air-tubes were really aquatic, and rarely came to the surface at all until ready to pupate, it was necessary to modify that statement and to admit of numerous exceptions. Yet the statement is still a serviceable one when applied to the more troublesome species, and forms the basis upon which we

recommend oiling stagnant pools to destroy mosquito life. Even where it is generally true, however, mosquito larvæ may, under exceptional conditions, survive complete submergence for some time.

Late in the fall of 1905 (November) Mr. H. H. Brehme was collecting on the salt marshes under instructions to investigate ice-covered pools, and on that day the pools generally had an ice coating one-quarter of an inch or more thick. It was necessary to break through this cover to make collections, and among other things a number of larvæ of *Culex salinarius* were found, apparently dead and lying on the bottom. Put into a bottle of water they sank and remained there for a time. After a few minutes signs of life were observed and feeble movements were noted. Then came a few jerks and a feeble effort to reach the surface. After a short period of quiescence came another attempt, and yet another, until finally the surface was reached, and communication with the outer air was re-established. Again the larvæ descended, remained below a few minutes, reascended, and in about an hour the creatures were as lively as ever. They had been cut off from the air for 12 hours at least, had not been caught in the freezing ice, but had apparently become torpid and sunk to the bottom. With the rise in temperature activity was renewed, and in the laboratory the specimens were nearly all brought to maturity.

November 30, 1906, Mr. Brehme was again collecting on the marshes, and in pools covered with thin ice formed during the preceding night, he took a number of full-grown larvæ and two pupæ of *Culex cantator*. The larvæ were scarce, only two or three to a pool, but all were active and developed normally. It is quite possible, therefore, that in a mild season like that of 1906, a salt-marsh brood might issue as late as December 1st, and, indeed, a communication received from Dr. Howard leads me to believe that locally such a brood did issue in a neighbouring State. If that was also the case in New Jersey it was not noticed, and the insects did not get off the marsh.

We have also been in the habit of considering the adult mosquitoes as rather short-lived, and this turns out to be another error, as to quite a number of species at least. A striking case noticed in 1906 was that of *Culex abfitchii*, which until that year was known from New Jersey by only a specimen or two as the result of three or four years of close collecting. In April of last year the larva was found locally in the Orange Mountains

in great numbers, and in early May the adult was the common woods mosquito, a fierce and persistent biter within its domain, from which it did not venture. Week after week these adults continued on, and not until late July did they decrease materially in numbers. The last captures were August 16, and as all the brood was out of the pools early in May, these specimens had lived well over three months, and the bulk of the brood had lived close to or quite three months. The possibility of a second brood is absolutely excluded, because the local conditions were kept under constant observation during the entire period. We begin to hope that even in 1907 we may yet learn something new concerning these interesting creatures.

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#### TO COLLECTORS OF NOCTUIDS.

Sir George Hampson is now working at the Acronyctinæ for his "Catalogue of the Lepidoptera Phalænæ in the British Museum." He writes that this group includes all the genera he has not yet dealt with in Dyar's Catalogue down to page 197. He is very badly off for Canadian species, especially from Eastern Canada, in the genera *Apatela*, *Hadena*, *Papipema*, *Caradrina*, etc., and large series of as many species as possible will just now be of great assistance to him. I therefore make an appeal to Canadian entomologists to help in this great work, and will gladly receive and forward free of all expense any specimens which Canadian collectors may be willing to send either as donations to the British Museum or as a loan for study. I shall be glad if those having duplicates for exchange in this genus will correspond with me. The above Catalogue is of special use to Lepidopterists of the whole world, and as we now know that Canadian specimens will be acceptable, I have little doubt that many Canadians will help in building up the collections in the British Museum, which is a safe depository for insects, and where every facility for study is given to students from all parts of the world. Good specimens of all Noctuids, particularly from Eastern Canada, will also be acceptable, but at the present time the Acronyctinæ are most desired. Letters and parcels of specimens can be sent to me free of postage if addressed officially.

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